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| APPLICATION NO.  | FILING DATE | FIRST NAMED INVENTOR        | ATTORNEY DOCKET NO. | CONFIRMATION NO. |
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| 10/561,095   | 12/16/2005  | Brian A. Hunter             | huntcb01.034        | 2465             |
| 25247 7590 06/17/2009<br>GORDON E NELSON<br>PATENT ATTORNEY, PC<br>57 CENTRAL ST<br>PO BOX 782<br>ROWLEY, MA 01969 |             |                             |                     |                  |
| EXAMINER<br>VON BUHR, MARIA N  |             |                             |                     |                  |
| ART UNIT<br>2121   |             | PAPER NUMBER                |                     |                  |
| NOTIFICATION DATE<br>06/17/2009  |             | DELIVERY MODE<br>ELECTRONIC |                     |                  |

**Please find below and/or attached an Office communication concerning this application or proceeding.**

The time period for reply, if any, is set in the attached communication.

Notice of the Office communication was sent electronically on above-indicated "Notification Date" to the following e-mail address(es):

genelson@comcast.net

### Office Action Summary

**Application No.**

10/561,095

**Applicant(s)**

HUNTER ET AL.

**Examiner**

M.N. VON BUHR

**Art Unit**

2121

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --  
**Period for Reply**

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) OR THIRTY (30) DAYS, WHICHEVER IS LONGER, FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

**Status**

- 1) ☒ Responsive to communication(s) filed on 07 April 2009.  
2a) ☒ This action is **FINAL**. 2b) ☐ This action is non-final.  
3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

**Disposition of Claims**

- 4) ☒ Claim(s) 1-35 is/are pending in the application.  
4a) Of the above claim(s) \_\_\_\_\_ is/are withdrawn from consideration.  
5) ☐ Claim(s) \_\_\_\_\_ is/are allowed.  
6) ☒ Claim(s) 1-35 is/are rejected.  
7) ☐ Claim(s) \_\_\_\_\_ is/are objected to.  
8) ☐ Claim(s) \_\_\_\_\_ are subject to restriction and/or election requirement.

**Application Papers**

- 9) ☐ The specification is objected to by the Examiner.  
10) ☒ The drawing(s) filed on 16 Dec 2005 & 07 Apr 2009 is/are: a) ☒ accepted or b) ☐ objected to by the Examiner.  
Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).  
Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).  
11) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

**Priority under 35 U.S.C. § 119**

- 12) ☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).  
a) ☐ All b) ☐ Some \* c) ☐ None of:  
1. ☐ Certified copies of the priority documents have been received.  
2. ☐ Certified copies of the priority documents have been received in Application No. \_\_\_\_\_.  
3. ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

\* See the attached detailed Office action for a list of the certified copies not received.

**Attachment(s)**

- 1) ☒ Notice of References Cited (PTO-892)  
2) ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948)  
3) ☐ Information Disclosure Statement(s) (PTO-8508)  
Paper No(s)/Mail Date \_\_\_\_\_

- 4) ☐ Interview Summary (PTO-413)  
Paper No(s)/Mail Date \_\_\_\_\_  
5) ☐ Notice of Informal Patent Application  
6) ☐ Other: \_\_\_\_\_

### DETAILED ACTION

1. Examiner acknowledges receipt of Applicant's response to the previous Office action, received 07 April 2009; which amends the specification, drawings and claims 1, 10, 16, 18, 24 and 28. Claims 1-35 remain pending in this application.

2. The replacement sheets for Figures 4, 6-10, 12 and 13 were received on 07 April 2009. These drawings are acceptable.

3. In response to Applicant's amendment, the objections to the drawings, specification and claims are deemed to have been overcome and are, therefore, withdrawn.

4. The text of those sections of Title 35, U.S. Code not included in this action can be found in a prior Office action.

5. In response to Applicant's remarks, concerning the 35 U.S.C. §101 rejection of the claims, as being directed to non-statutory subject matter, Examiner notes the following.

Applicant argues that the claimed subject matter is statutory, because it is "tied to a particular machine or apparatus," specifically because of the presence in the claims of the terms "storage" and "processor" (page 11 of the instant response). This argument is not persuasive, because this generic claiming of a storage and processor does not tie the claimed method to a "*specific* machine or apparatus." The terms "storage" and "processor" are extremely broad, and are not specifically defined.

Applicant further argues that the claimed subject matter is statutory, because the mathematical operations are performed for a practical application (page 12 of the instant response). This argument is not persuasive, because the body of each of the claims has no clear nexus with the language of the preamble of the respective claim. As per claim 1, although Applicant indicates practical applicability of the claimed method to "analyzing a set of assets," no actual analyzing is accomplished by the body of the claim. In this case, all that is accomplished is the generation of a number; namely, the instantly claimed probability, and that number is not claimed as actually being utilized in any way. As per claim 4, although Applicant indicates practical applicability of the claimed method to "optimizing a set of assets," no actual optimizing is accomplished by the body of the claim. In this case, all that is accomplished is the determination of a plurality of numbers; namely, the instantly claimed weights, and those numbers are not claimed as actually being utilized in any way. As per claim 10, although Applicant indicates practical applicability of the claimed method to "selecting a set of assets" and "optimizing the weights of the assets," the body of the

claim only repeats the posed tasks of the preamble, without more. Hence, the claim is presented as a mere abstract concept, without any indication of how the desired results are actually accomplished.

Accordingly, claims 1-35 stand rejected under 35 U.S.C. §101 rejection, as being directed to non-statutory subject matter.

6. In response to Applicant's remarks, concerning the 35 U.S.C. §102(e) rejection of claims 1, 4, 6-10 and 13-26, as being clearly anticipated by Bernhardt (U.S. Patent Application Publication No. 2003/0055765), Examiner notes the following:

a. As presented in the previous Office action, as per claim 1, Bernhardt teaches "A method of analyzing a set of assets selected from a plurality of thereof, historic returns data for the assets of the plurality being stored in storage accessible to a processor" ([0007];[0008]) "and the method comprising the steps performed in the processor of: receiving inputs indicating assets selected for the set and for each asset, a desired minimum return" ([0029];[0087]); "using the historic returns data to determine a probability that at least one of the selected assets will not provide the desired minimum return indicated for the asset; and outputting the probability" ([0029]-[0033]).

As per claim 4, Bernhardt teaches "A method of optimizing a set of assets, historic returns data for the assets being stored in storage accessible to a processor and the method comprising the steps performed in the processor of: receiving inputs indicating a set of scenarios for the set of assets, each scenario having values which are used in optimizing the set of assets and which vary stochastically between two extremes and a probability of occurrence for the scenario" ([0029]-[0033];[0144]-[0145]); "and determining weights of the assets in the set such that the worst-case value of the set of assets is optimized over the set of scenarios" ([0144]-[0146]).

As per claim 6, Bernhardt teaches "The method of optimizing set forth in claim 4 wherein: a scenario in the set of scenarios may correspond to the historical returns data for the assets in the set of assets" ([0144]-[0145]).

As per claim 7, Bernhardt teaches "The method of optimizing set forth in claim 4 wherein: a scenario in the set of scenarios may include certain assets in the set of assets which are highly correlated" ([0144]).

As per claim 8, Bernhardt teaches "The method of optimizing set forth in claim 4 wherein: a scenario in the set of scenarios may correspond to outliers in the historical returns data" ([0119];[0144]).

As per claim 9, Bernhardt teaches "The method of optimizing set forth in claim 4 further comprising the step of: receiving inputs indicating additional constraints to which the set of assets being optimized is

subject; and in the step of determining weights of the assets, determining the weights subject to the additional constraints” ([0030];[0023]).

As for claim 10, the same citations applied to claims 1 and 4 above apply as well for this claim.

As per claim 13, Bernhardt teaches “The method set forth in claim 10 wherein: optimizing the weights of the assets is done using robust optimization” ([0017]-[0025]).

As per claim 14, Bernhardt teaches “The method set forth in claim 13 wherein: the robust optimization optimizes over a set of user-specified scenarios, each scenario having values which are used in optimizing the set of assets and which vary stochastically between two extremes and a probability of occurrence for the scenario” ([0144]-[0146]).

As per claim 15, Bernhardt teaches “The method set forth in claim 10 wherein: optimizing the weights of the assets is done subject to a constraint that the probability that the set of assets yields a desired minimum return is greater than a user-specified value  $a$ ” ([0029]-[0030]).

As per claim 16, Bernhardt teaches “The method set forth in claim 15 wherein: the optimization is done subject to a plurality of constraints ( $1..n$ ), a constraint  $c_{hi}$  specifying that the probability that the set of assets yields a desired minimum return that is greater than a user-specified value  $a_{ir}$ ” ([0029]-[0030]).

As per claim 17, Bernhardt teaches “The method set forth in claim 15 wherein: optimizing the weights of the assets in the set is done using robust optimization” ([0017]-[0025]).

As per claim 18, Bernhardt teaches “The method set forth in claim 17 wherein: the robust optimization optimizes over a set of user-specified scenarios, each scenario including a mean return and a covariance matrix, each of which varies stochastically between two extremes, and a probability of occurrence for the scenario” ([0078]-[0079];[0032]).

As per claim 19, Bernhardt teaches “The method set forth in claim 10 wherein: the asset may have a negative weight” ([0033]).

As per claim 20, Bernhardt teaches “The method set forth in claim 10 wherein: the sum of the weights of the assets in the set may exceed 1” ([0033]).

As per claim 21, Bernhardt teaches “The method set forth in claim 10 wherein: optimizing the weight of the assets is done subject to one or more additional constraints” ([0039]-[0042];[0052]-[0061]).

As per claim 22, Bernhardt teaches “The method set forth in claim 21 wherein: the additional constraint restricts the sum of the weights of the assets belonging to a selected subset of the assets in the set” ([0039]-[0042];[0052]-[0061]).

As per claim 23, Bernhardt teaches “The method set forth in claim 21 wherein: the additional constraint constrains the weight of an asset such that the amount of the asset in the set is above a minimum investment threshold” ([0029]-[0030]).

As per claim 24, Bernhardt teaches “The method set forth in claim 21 wherein; the additional constraint limits constrains the set's downside risk to be less than a predetermined value *b*” ([0029]-[0030]).

As per claim 25, Bernhardt teaches “The method set forth in claim 24 wherein; the additional constraint is computed from the worst draw-down for each asset” ([0034]-[0038]).

As per claim 26, Bernhardt teaches “The method set forth in claim 24 wherein: the additional constraint is computed from the set's average return and standard deviation” ([0031]).

b. As per claims 1 and 10, Applicant argues that “the desired minimum return is per-asset, not per-portfolio and that the probability is not that the portfolio will not provide a desired minimum return, but that an asset of the portfolio will not provide the asset's desired minimum return” (pages 13, 15 and 19 of the instant response). This argument is not persuasive, because it is not supported by the instant claim language. There is no language in the instant claims which necessitates the interpretation that assets within portfolios are being analyzed. The instant claim language does not preclude the interpretation that a portfolio (asset) from within a plurality of portfolios (set of assets) is being analyzed, since no definition limiting the scope of the term “asset” has been provided for.

c. As per claim 4, Applicant argues that “The method is applied to individual portfolios; Bernhardt does not define scenarios which are variations of the behavior of the assets of the portfolio and consequently does not and cannot “determine[] weights of the assets in the set such that the worst case value of the set of assets is optimized over the set of scenarios”” (pages 16 and 19 of the instant response). This argument is not persuasive, because it is not supported by the instant claim language. There is no language in the instant claims which necessitates the interpretation that scenarios are specifically “variations of the behavior of the assets of the portfolio,” as indicated by Applicant. The instant claim language does not preclude the interpretation that a portfolio (asset) from within a plurality of portfolios (scenario/sets of scenarios) is being analyzed, since no definitions limiting the scope of the terms “asset” and “scenario” have been provided for.

d. Accordingly, claims 1, 4, 6-10 and 13-26 stand rejected under 35 U.S.C. §102(c), as being clearly anticipated by Bernhardt (U.S. Patent Application Publication No. 2003/0055765).

7. In response to Applicant's amendment and remarks, concerning the 35 U.S.C. §103(a) rejection of claims 5, 11, 12 and 28-33, as being unpatentable over Bernhardt (U.S. Patent Application Publication No.

2003/0055765) in view of Columbus et al. (U.S. Patent Application Publication No. 2002/0022988), Examiner notes the following:

a. As presented in the previous Office action, as for claims 5, 11, 12 and 28-33, Bernhardt discloses the limitations of claims 1, 4 and 10 above, and further discloses quantifying the risk of an asset ([00145], i.e., risk control). However, Bernhardt fails to disclose the limitations of claims 5, 11, 12 and 28-32. However, Columbus et al. teach that the value of the set of assets is a real option value and that the objective function is adjusted by assigning a premium or a discount to the real value of the assets ([0007]). Columbus et al. further teach an objective function to take tax sensitivity of an asset (Fig. 5c). Therefore, it would have been obvious to a person of the ordinary skill in the art at the time the invention was made to combine the teachings of Bernhardt with the method of Columbus et al., because it would provide an improved system for evaluating performance based on returns observed after a particular revision, historical consistency and/or the number of revisions made by the analyst or inventing entity ([0016]).

b. Applicant's arguments repeat the position addressed above, concerning Bernhardt, which Examiner finds not to be persuasive. Furthermore, it is noted that the additional remarks presented at pages 17-18 and 20-21 of the instant response do not address the combination of Bernhardt in view of Columbus et al., but instead address the references separately. Accordingly, such remarks cannot be considered persuasive, because they are not directed to their combination as presented in the previous Office action.

c. Accordingly, claims 5, 11, 12 and 28-33 stand rejected under 35 U.S.C. §103(a), as being unpatentable over Bernhardt (U.S. Patent Application Publication No. 2003/0055765) in view of Columbus et al. (U.S. Patent Application Publication No. 2002/0022988).

8. In response to Applicant's remarks, concerning the 35 U.S.C. §102(e) rejection of claims 1-35, as being clearly anticipated by Eapen (U.S. Patent Application Publication No. 2004/0138897), Examiner notes the following:

a. As presented in the previous Office action, Eapen discloses "a method and system to select projects from available projects and to allocate resources to departments to maximize the incremental value gained within a desired execution risk. Probability distribution of departmental capacities is created by performing a Monte-Carlo simulation considering probabilities of future events that may increase or decrease capacity. Real options based value is calculated for all available projects at the start and end of the time period and a subset of the highest incremental value projects is selected to form a trial portfolio. Probability distribution of resource demand is created in each department through a Monte-Carlo simulation of the trial portfolio by specifying each project's resource needs. The capacity and demand characteristics are compared and an execution risk is calculated. If the execution risk is not within a desired level, projects in the trial

portfolio are added, deleted or replaced or departmental capacities are changed such that the execution risk is brought to the desired level. At the end of this iterative process, the best possible selection of projects as well as the best possible allocation of capacities to departments are obtained and reported" (abstract).

As per the claims, Eapen teaches an application characterized by an "Input mechanism for specifying the probabilistic characteristics of the events that affect available capacity of resources within departments," "Monte-Carlo simulation engine to create the probability distribution of departmental capacities," "Real options analysis engine to calculate the value of the project at the start and end of the time period considered," "Output mechanism that shows the projects and incremental values in a descending fashion so that a subset of highest incremental value projects can be selected," "Input mechanism for specifying the probabilistic characteristics of resource demand," "Monte-Carlo simulation engine to create a probabilistic resource demand for all departments," "Execution risk calculator considering the probabilistic capacities ... of departments and the probabilistic resource demands ... for the departments," and "Output mechanism that shows resource demand, execution capacity and execution risk in all departments" (paragraphs 0061-0068), wherein "An execution risk is calculated for each department by comparing the probability distribution of resource demand against probability distribution of available capacity. Execution risk is defined as the probability that the department will not have enough capacity to meet the resource demand" (paragraph 0083) and "Alternately, an overall execution risk for the entire company (including all departments) can be calculated and used as the measure for selecting the portfolio" (paragraph 0084). See, also, paragraph 0001.

b. As per claims 1 and 10, Applicant argues that "the desired minimum return is per-asset, not per-portfolio and that the probability is not that the portfolio will not provide a desired minimum return, but that an asset of the portfolio will not provide the asset's desired minimum return" (pages 13, 17 and 19 of the instant response). This argument is not persuasive, because it is not supported by the instant claim language. There is no language in the instant claims which necessitates the interpretation that assets within portfolios are being analyzed. The instant claim language does not preclude the interpretation that a portfolio (asset) from within a plurality of portfolios (set of assets) is being analyzed, since no definition limiting the scope of the term "asset" has been provided for.

c. As per claim 4, Applicant argues that "There is nothing in the method which corresponds to Applicants' robust optimization. Eapen deals with possible future variations in the resources available for projects and in the resources required for a portfolio of projects by way of the Monte Carlo simulations; he does not define specific scenarios for resource availability and consequently does not and cannot do anything like "determin[ing] weights of the assets in the set such that the worst case value of the set of assets is optimized over the set of scenarios"" (pages 17 and 19 of the instant response). This argument is not persuasive, because it is not supported by the instant claim language. There is no language in the instant



claims which supports Applicant's assertion of "defining specific scenarios for resource availability." The instant claim language does not preclude the interpretation that a portfolio (asset) from within a plurality of portfolios (scenario/sets of scenarios) is being analyzed, since no definitions limiting the scope of the terms "asset" and "scenario" have been provided for.

d. Accordingly, claims 1-35 stand rejected under 35 U.S.C. §102(c), as being clearly anticipated by Eapen (U.S. Patent Application Publication No. 2004/0138897).

9. The prior art made of record and not relied upon is considered pertinent to Applicant's disclosure. Applicant is advised to carefully review the cited art, as evidence of the state of the art, in preparation for responding to this Office action.

**10. THIS ACTION IS MADE FINAL.** Applicant is reminded of the extension of time policy as set forth in 37 CFR 1.136(a).

A shortened statutory period for reply to this final action is set to expire **THREE MONTHS** from the mailing date of this action. In the event a first reply is filed within **TWO MONTHS** of the mailing date of this final action and the advisory action is not mailed until after the end of the **THREE-MONTH** shortened statutory period, then the shortened statutory period will expire on the date the advisory action is mailed, and any extension fee pursuant to 37 CFR 1.136(a) will be calculated from the mailing date of the advisory action. In no event, however, will the statutory period for reply expire later than **SIX MONTHS** from the mailing date of this final action.

**11.** Any inquiry concerning this communication or earlier communications from the examiner should be directed to M.N. VON BUHR whose telephone number is (571)272-3755. The examiner can normally be reached on Monday - Friday (9-5).

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Albert Decady can be reached on (571)272-3819. The fax phone number for the organization where this application or proceeding is assigned is 571-273-8300.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see <http://pair-direct.uspto.gov>. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free).

/M.N. VON BUHR/  
Primary Examiner, Art Unit 2121